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513	7590	08/24/2004	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			ALEJANDRO, RAYMOND	
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SUITE 800			PAPER NUMBER	
WASHINGTON, DC 20006-1021			1745	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,405

Applicant(s)

AOYAMA, MINORU

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7,8,12 and 27-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7,8,12 and 27-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This action is submitted responsive to the amendment filed 07/06/04. The applicant has not overcome the 35 USC 103 rejection. Refer to the abovementioned amendment for specific details on applicant's rebuttal arguments. Thus, the present claims (including newly added claims 27-33) are finally rejected over the same art as seen below and for the reasons of record:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1, 12 and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoklosa et al 4920019.

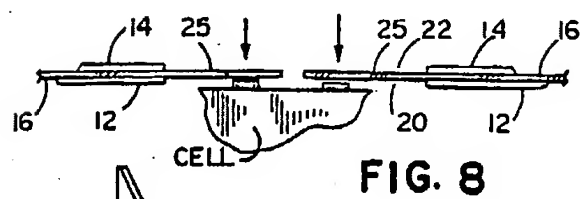
The instant application is directed to an assembled battery unit wherein the disclosed inventive concept comprises the specific battery holding arrangement.

With reference to claims 1 and 27:

Stoklosa et al disclose a battery pack assembly having a circuit board (TITLE) wherein the battery pack is made by grouping a plurality of cells, positioning a common circuit board adjacent terminals of the cells (COL 1, lines 9-15).

The common circuit board is positioned adjacent terminals of the cells and a lead element is soldered to each terminal and to a portion of the circuit board (COL 1, lines 9-15). Each cell must be individually pretabbed, it must have two conductive leads attached by soldering, one from the positive terminal and one from the negative terminal (COL 1, lines 14-18) (emphasis added). Thus, the cell leads may be attached to the circuit board.

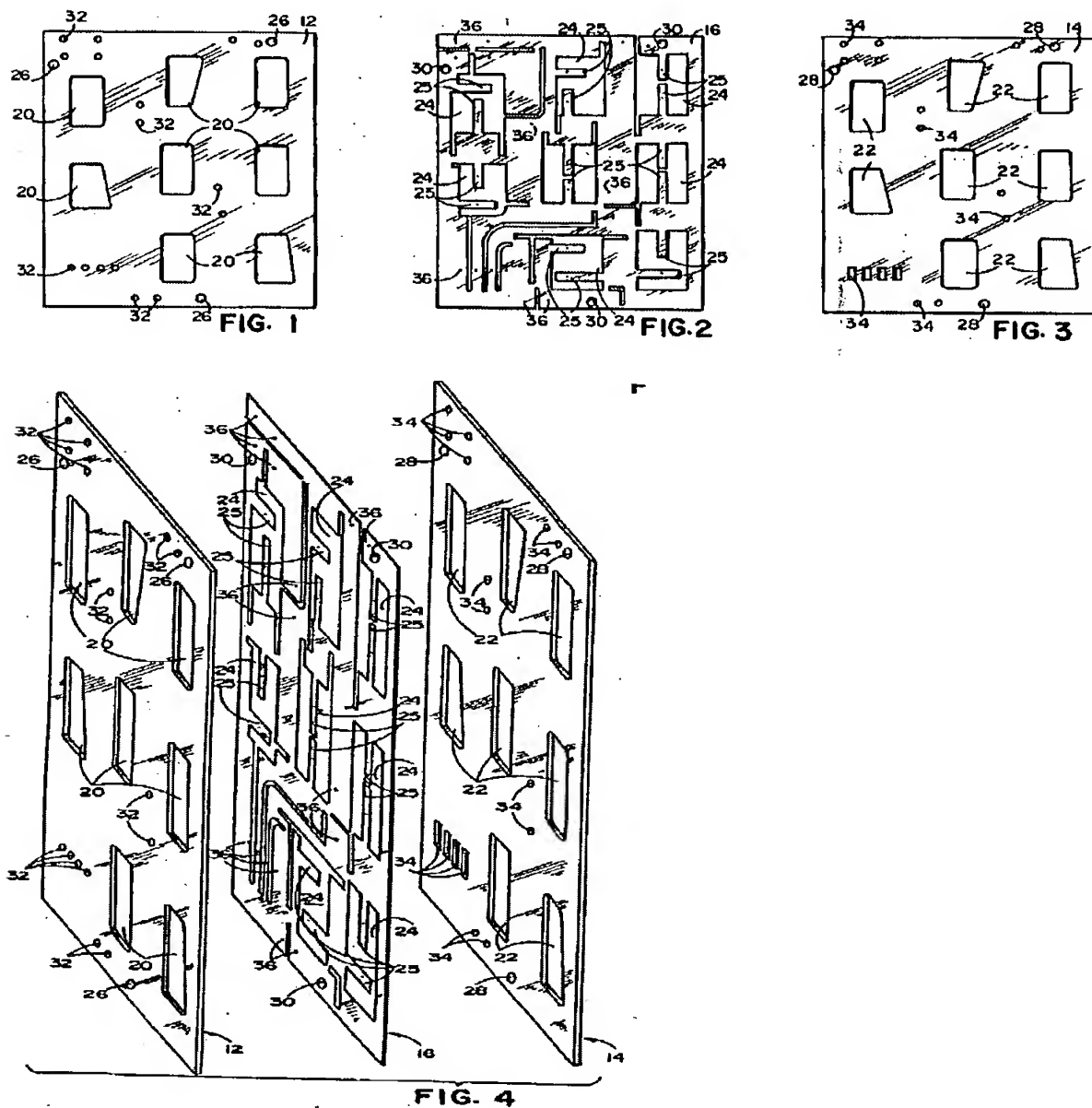
The completed laminated circuit board is employed to form a battery pack assembly by combining it with a series of eight galvanic cells or batteries. The plurality of cells are arranged in a pattern or grouping such that when the circuit board is placed thereon, each pair of tabs 25 overlies the respective negative and positive terminals or posts of the battery adjacent thereto as illustratively depicted in **Figure 8** below. Then, by applying to the tabs a deflecting biasing force, the tabs will be bent slightly to engage the battery terminals and secured to the battery terminals by welding to physically secure them to each other (COL 4, lines 37-50).



Stoklosa et al disclose that the circuit board includes at least one, and preferably two pre-perforated insulator sheets and a pre-perforated metal layer laminated between the insulator

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sheets in sandwich fashion (COL 1, lines 35-38). Accordingly, the laminated circuit board 10 is formed of lower insulation sheet 12 and upper insulation sheet 14 and an intermediate metal foil layer 16 therebetween (COL 2, lines 26-35).



Figures 1, 2, 3 above depict three layer component to be combined wherein the layers as combined are illustrated in Figure 4 above.

It is apparent from Figures 1-4 that clearance openings 20 are of a size and configuration to fit over the top of the terminals of a series of galvanic cells or batteries, in this case eight in number. Thus, there are eight openings 20 generally rectangular in configuration and large enough to extend around the periphery of the two terminals, positive and negative, of each

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battery (COL 2, line 67 to COL 3, line 5). Openings 22 in the upper insulation sheet 14 and opening 24 in the intermediate metal foil layer 16 are provided corresponding in number and location to openings 20 in the lower insulation sheet 12 (COL 3, lines 41-45).

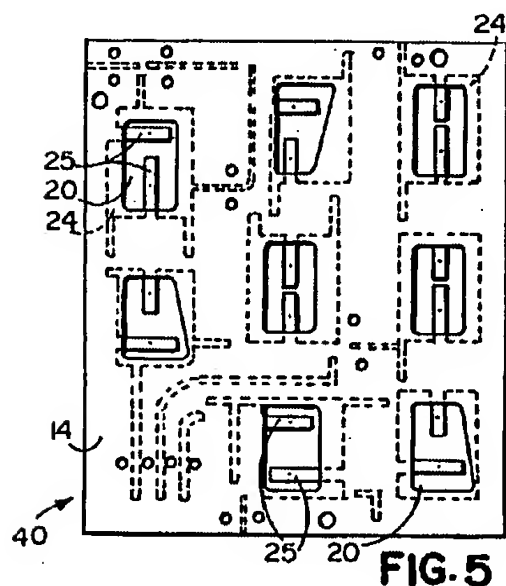
Therefore, the eight openings 20, 22, 24 in respective sheets 12, 14 and 16 hold the battery cells. It is also noted that one of either the lower insulation sheet 12 or the upper insulation sheet 16 provides a configuration to hold or retain cells, thus, they act as the holding plate for holding the cells. Hence, the examiner has interpreted that one of the two insulation sheets serves as a holding plate per se. In addition, a common circuit board is positioned adjacent the cell terminals, wherein a lead element is connected to each terminal and to a portion of the circuit board.

Stoklosa et al disclose that other electrical components can be electrically connected to the circuit portions of the metal layer by extending connector elements through orifices 32 and pressing them through orifices 36 to form a friction fit with the metal layer (COL 4, lines 52-57). The lower insulation sheet 12 is formed with a series of alignment holes 26, a set of connection orifices 32 (COL 2, lines 63-66). These holes coincide with two or more like holes 28 in sheet 14, located in the same pattern and of the same size. When the two sheets are placed one upon the other, the three holes in each sheet coincide to receive alignment pins. These pins can be used to cause these sheets to be in alignment. Alternatively, two or more protrusions could be formed into the insulation sheets to fit into like positioned holed in the intermediate metal layer for alignment and, if desired, securement therewith (COL 3, lines 13-23). Stoklosa et al also disclose that a third set of connecting orifices is provided in both sheets, these openings are coincident with the lower sheet 12 and upper sheet 14. The purpose of these orifices is to allow electrical

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connection between the metal foil and overlying components in the battery pack to be assembled. This can be done by extending a connecting member such as a wire lead of an electronic component, through the metal (COL 3, lines 24-36). *Thus, the slit has a positioning rib provided on the circuit board housing (insulation sheets and metal foil layer) where the assembled battery units is incorporated.*

Stoklosa et al disclose that the three components 12, 14, 16 are then assembled together to laminate the components. This may be done by adhesively coating to bond the three layers into one integral structure 40 as depicted in Figure 5 below.



Each cell must be individually pretabbed, it must have two conductive leads attached by soldering, one from the positive terminal and one from the negative terminal (COL 1, lines 14-18). The common circuit board is positioned adjacent terminals of the cells and a lead element is soldered to each terminal and to a portion of the circuit board (COL 1, lines 9-15).

Regarding claim 12:

The plurality of cells are arranged in a pattern or grouping such that when the circuit board is placed thereon, each pair of tabs 25 overlies the respective negative and positive terminals or posts of the battery adjacent thereto as illustratively depicted in Figure 8 above. *It is*

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apparent from Figures 2 and 4 that the positive lead plates and negative lead of at least two (2) adjacent cells are arranged alternatively as positive lead plates and negative lead plates.

With respect to claims 28-29:

Stoklosa et al disclose the inclusion of clearance openings 20, 22 and 24; the alignment holes 26, 28 and 30; the connecting orifices 32 and 36; and the larger orifices 34 (refer to FIGURES 1-3/ COL 2, line 63 to COL 3, line 67). *Thus, any of the foregoing openings, holes and orifices serves as the slit.*

Concerning claims 30-31:

Stoklosa et al disclose that each cells must have two conductive leads attached by soldering (COL 1, lines 14-17). *It is noted that the term "flexible" is a relative term, thus, in the absence of the specific degree of flexibility the leads of the prior art meet the required degree regardless of the particular construction material.*

As far as claims 32-33:

Stoklosa et al illustrates in FIGURES 1-7, particularly in FIGURES 1-3, that each of the lower insulator sheet 14, the metal foil layer 16, and the lower insulation sheet 12, alone or individually, are a single-piece structure (*only one structure*) (FIGURES 1-7).

Stoklosa et al disclose a battery pack assembly according to the foregoing aspects. However, Stoklosa et al do not expressly disclose the battery cells attached to the holding plate.

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to attach the battery cells to the holding plate structure of Stoklosa et al as it has been held that making elements or structures either integral, separable, adjustable or even rearranging of parts is merely a matter of obvious engineering choice, that is to say, having

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several parts rigidly secured together as a single unit is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed battery unit is significant. *In re Lardon* 144 USPQ 347. *In re Dulberg* 129 USPQ 348. *In re Stevens* 101 USPQ 284. *In re Japikse* 86 USPQ 70. See MPEP 2144.04 [R-1] Legal Precedent as Source of Supporting Rationale: V. Making Portable, Integral, Separable, Adjustable, OR Continuous & VI. Reversal, Duplication, OR Rearrangement of Parts.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoklosa et al 4920019 as applied to claim 1 above, and further in view of Hope et al 5422200.

Stoklosa et al is applied, argued and incorporated herein for the reasons above. However, Stoklosa et al do not disclose the specific lead plate configuration; the thin battery cells; the adhesive; and the lithium-polymer batteries.

With respect to claim 7-8:

Hope et al disclose a battery packaging construction for multiple cell alkali metal batteries comprising a plurality of flat battery cells, which have leads extending therefrom (ABSTRACT). **Figure 2** below shows a battery which is constructed of a plurality of cells 10 with leads 15A and 15B (COL 3, lines 7-12/ COL 2, lines 56-58). *It is apparent from Figure 2 that the leads 15A and 15B extend from the battery surface in a parallel arrangement.*

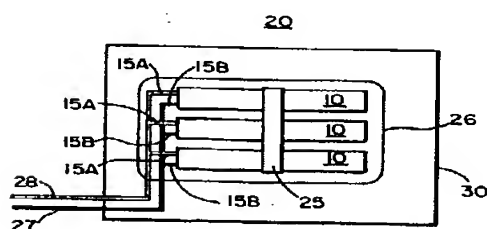


FIG. 2

Hope et al disclose the battery packaging construction has a plurality of flat battery cells (ABSTRACT/ COL 2, lines 56-58). *It is noted that flat battery are also known in the art as thin flat battery because the battery has little depth with respect to the width and depth. .*

Hope et al teach that the battery 20 which is constructed of a plurality of cells 10 are electrically connected together by electrically conductive tape or adhesive, or adhesive transfer tape of well known type; or the cell stack held together with a band of tape or by an adhesive layer between them (COL 3, lines 11-17).

It is taught that the single battery cell is of the lithium-polymer type (COL 2, lines 50-53).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to make the specific lead plate configuration of Hope et al in the assembled battery of Stoklosa et al as Hope et al teach that leads extending from the single cell allow the single cell itself to have the leads electrically connected in series or parallel to terminals. Thus, the specific lead plate configuration as claimed would provide a battery package construction exhibiting satisfactory electrical connection and electrically connecting leads from the multiple cells to an external electrical current carrying member of the battery so that generated electrical energy be drawn and directed to an energy powered device. *Additionally, it has been held that changes in shape are obvious In re Dailey 149 USPQ 47 (CCPA 1966).*

With respect to the thin battery cells, it would have been obvious to one skilled in the art at the time the invention was made to use the flat (thin) battery cells of Hope et al in the assembled battery of Stoklosa et al as Hope et al teach that by using flat battery cells in the battery packaging construction for multicelled batteries a lightweight product (battery assembly) is obtained. Further, thin battery cells are also desirable in the multicelled battery field because

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thin battery cells provide battery packaging construction which can accommodate a large numbers of cells in a compact durable product. *Additionally, it has been held that making articles adjustable is obvious In re Stevens 101 USPQ 284 (CCPA 1954).*

As to the adhesive, it would have been obvious to one skilled in the art at the time the invention was made to use adhesive of Hope et al to fix the battery cells of Stoklosa et al because Hope et al teach that cells can be electrically connected together in series or parallel by electrically conductive tape or adhesive, or adhesive transfer tape of well known type. Accordingly, cells can be held together with at least one band of tape or by an adhesive layer between them. *Hope et al's teaching is also consistent with the disclosure of Stoklosa et al that components can be assembled together by coating the mating surfaces thereof with a suitable adhesive to bond the components into one integral structure. Thus, an adhesive securing feature can be employed in the assembled battery unit to protect the cells from accidentally moving or displacing.*

As far as the lithium-polymer batteries, it would have been obvious to one skilled in the art at the time the invention was made to use the lithium-polymer batteries of Hope et al in the assembled battery of Stoklosa et al because Hope et al teach his invention provide battery packaging construction for multicelled batteries which is particularly suitable for alkali metal batteries. Accordingly, the lithium-polymer type cell of Hopes et al provides a durable multicelled battery unit. *Thus, Hope et al directly teach the use of a lithium-polymer battery provides a durable multicell battery.*

Response to Arguments

1. Applicant's arguments filed 07/06/04 have been fully considered but they are not persuasive. The main contention of applicant's arguments is still premised on the assertion that the prior art of record fails to disclose "the holding plate on which the plurality of battery cells are attached". However, this assertion is respectfully disagreed with because the prior art clearly teaches the following:

a) "the common circuit board is positioned adjacent terminals of the cells and a lead element is soldered to each terminal and to a portion of the circuit board" (Stoklosa et al: COL 1, lines 9-15) (**emphasis added**).

b) "each cell must be individually pretabbed, it must have two conductive leads attached by soldering, one from the positive terminal and one from the negative terminal" (Stoklosa et al: COL 1, lines 14-18) (**emphasis added**).

Thus, the prior art of record clearly instructs the skilled artisan to attach the cell leads to the circuit board. That is to say, to group a plurality of cells by positioning a common circuit board adjacent the terminals of the cell, and soldering/attaching to each terminal and to a portion of the circuit board a lead element. Thus, the prior art clearly envisions the use of a circuit board plate (holding plate) attached to the battery cells. Furthermore, the reason why the claims are being rejected under the 35 USC 103 statute rather than under the 35 USC 102 statute is because such teachings are part of the background section of the Stoklosa et al reference, and thus, they (the teachings) do not represent an exemplified embodiment of his(their) invention. Accordingly, the 35 USC 103 rejection has been presented to demonstrate that by combining Stoklosa et al's embodiment and the teachings of the prior art, one of ordinary skill is able to arrive at the

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specific claimed requirement of having attached the holding plate and the battery cells so as to enhance mechanical stability and structural integrity. Accordingly, given that the same reference is disclosing said both teachings (i.e. the background teaching and the exemplified embodiment), it is further contended that such teachings are pertinent to each other and share applicant's field of endeavor of providing suitable circuit board in connection with battery cells. Thus, the prior art provides the necessary structural interrelationship to satisfy the claimed requirement.

2. With respect to the case law cited by the applicant (i.e. *Schenck v. Nortron Corp.*) and the unexpected benefits over the battery pack assembly of Stoklosa, the examiner wants to point out that such case law and unexpected benefits appears to be relevant to integrated structures. That is, when "elements or structures are integrated". However, since the present claims are completely silent as to whether or not the entire battery unit is structurally integrated (as argued by applicants), the scope of applicant's argument is not commensurate with the scope of the presently claimed invention. In addition, the cited case law was found to be applicable for "vibrating testing machine", that is, for machines directly affected by vibration or specifically made/designed to vibrate. Nonetheless, in general, the physical environment of battery cells does not require so. Moreover, applicant's arguments concerning the unexpected benefits are not supported by factual evidence. Stated somewhat differently, a statement or argument by the attorney is not factual evidence. (See *MPEP 716.01 and 2145 Consideration of Applicant's Rebuttal Arguments*).

3. Regarding the assertion that "*the circuit board 11 acts as a fulcrum*" (and/or represents a "*fulcrum*"), the examiner again contends that the present claims are completely silent as to the

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“fulcrum” limitation and its implication (as argued by applicants), therefore, the scope of applicant’s argument is not commensurate with the scope of the presently claimed invention.

4. In response to applicant’s arguments that *“In the battery pack assembly of Stoklosa, battery cells are fined to a holding plate but not attached thereto”*, the examiner wishes to point out that “the fixing structure” of the prior art performs exactly the identical function specified in the instant claim in substantially the same way, and produces substantially the same results as the claimed “attaching structure” of the present invention. Therefore, the prior art element/feature (i.e. “the fixing structure”) is a structural equivalent of the corresponding element/feature (i.e. “attaching structure”) claimed in the instant invention. Thus, one way or another, either by structure equivalence and/or by combined teachings (as set forth in item 1 above), the instant claims are rendered obvious over these remarks.

5. In response to applicant's argument that *“the claimed invention greatly reduces the possibility of the problem of the risk of short-circuit”*, the fact that applicant has recognized another advantage/disadvantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro
Examiner
Art Unit 1745

